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Success factors in electroacoustic music: A critical application of Leigh Landy's "something to hold onto factors" to the positively received *Bye Bye Butterfly* by Pauline Oliveros.

Abstract

The 1965 tape music composition *Bye Bye Butterfly* by Pauline Oliveros has gained status as a 'classic' electroacoustic piece. Accounts from Oliveros and her colleagues of the social and aesthetic environments of the work's creation further understanding of its context. Technical, musical and symbolic features of the work are defined through Heidi Von Gunden's descriptive analysis (1983 pp.53-59), descriptions in the literature, and Oliveros's own accounts of the work and its creation. Leigh Landy (2007 p.27) suggests electroacoustic composers can offer "access tools" to optimise reception. Critical application of Landy's reception studies "something to hold onto factor" categories (1994 & 2007), provides a framework for assessing if features of the work are Oliveros provided "access tools". Sound-based features as well as extra-musical information provided by the composer in release notes are found to be primarily aesthetic, rather than primarily "access tools" offered by Oliveros. Some support for Landy's suggestion is found in "access tool" features that also fulfil aesthetic motivations. Findings demonstrate *Bye Bye Butterfly* as a unique art work that embodies characteristics of its genre as well as acting as a symbolic dismissive statement on past aesthetic. It is these aesthetic and symbolic features that contribute to the work's acceptance to the canon of electroacoustic music.

Introduction

In December 1965, as an active member of the *San Francisco Tape Music Center*, Pauline Oliveros (b.1932) created the tape music composition *Bye Bye Butterfly*. Through both musical and technological improvisation Oliveros created a work which within two decades had become established as a classic in the genre of electroacoustic music (Rockwell 1980). The aesthetic, technical and compositional approaches of *Bye Bye Butterfly* can be traced through many of the composers earlier musical experiences. The work is one of Oliveros's first electronic works, but she had worked with recording from as early as 1948, when her mother purchased a wire recorder, a precursor to the tape recorder. (Von Gunden 1983).

Tones and textures of *Bye Bye Butterfly* were generated through super heterodyne 'difference tones' produced by two tube-oscillators, a technique innovated in composition by the composer (Oliveros [in Bernstein] 2008 pp.88-89). Created sounds were then fed through a tape delay set-up. The work was recorded live with no further editing or tape splicing. Partway into the piece, described as the 'B' section by musicologist Heidi Von Gunden (1983 pp.53-59), an aria from Puccini's *Madam Butterfly* is heard from an LP that was "...lying on a table in the studio." The use of an LP was planned, according to Oliveros, but she "...dropped the needle on the record without knowing what it was. I wanted to be surprised." (Oliveros [in Bernstein] 2008 pp.88-89). Subsequently, she named the piece *Bye Bye Butterfly*.

First released on *New Music for Electronic & Recorded Media* 1750 Arch LP, 1977, *Bye Bye Butterfly* has also been included as a key work in collections such as *OHM: the early gurus of electronic music* in 2000.

The work was included by John Rockwell in a 1980 *New York Times* article listing 15 pieces composed in the 1960s stated to be "...genuinely important, enjoyable compositions..." and works that "...reinforce the notion that our musical era is a vital one..." . Though a subjective list, this accolade has been

often quoted in the literature (Von Gunden p.55 and Bernstein p.94).

Comments from colleagues such as Stuart Dempster regarding the piece provide insight to the positive reception of this work:

“...for as much electronic music [Oliveros] did, she was always looking for the junk to make it very interesting. I think *Bye Bye Butterfly* [1965] is a classic example, a wonderful example.”

-Dempster [in Bernstein] 2008 pp.262-263.

Bernstein considers *Bye Bye Butterfly* as “...perhaps her best known work...” (p.30) and states that it is ...now considered a “classic” in the history of electronic music.” (p.95).

In this relatively recent genre, questions arise as to possible identifiable features of a work leading to its acceptance to the electroacoustic canon. Critical application of Leigh Landy's electroacoustic music reception studies “something to hold on to factor” categories (1994) to a successful electroacoustic work that also exemplifies many (if not all) of Landy's categories, provides a critique of the applicable qualities of Landy's suggested approach that composers can offer “access tools” in their work both musical and extra-musical (p.27).

The method

This project asks: Does critical application of Landy's “factors” to *Bye Bye Butterfly* support Landy's suggestion composer's can offer “access tools”?

As well as the work's musical features, *Bye Bye Butterfly* is presented with context by its composer. Statements and information provided by Oliveros about the work and its creation, its title and intertextuality embodied in the work, reduce its autonomy. The core method of this project is to assess these musical and extra-musical features as either “access tools” defined by Landy as “provided by the composer”; aesthetic expressions of the artist; or acting as both aesthetic expressions and provided “access tools”. A critical application of Landy's “something to hold onto factor” categories provides a framework for

assessing each feature.

Of each identified musical and extra-musical feature the question is asked:

Is this feature an example the composer's aesthetic within a successful art work; the composer's attempt to provide an “access tool” which has contributed to the success of this art work; or a combination provided aesthetic access tool?

The work

Heidi Von Gunden, currently Associate Professor Emerita of Composition-Theory at University of Illinois, and former pupil of Oliveros, provides an insightful biographical and musicological account of the composer's life and works (Gunden 1983). It includes an analytical description of *Bye Bye Butterfly* (pp.53-59) through identification of its main features, reference to symbolic implications of the work and its intertextuality.

Eight main musical features of *Bye Bye Butterfly* can be extracted from Von Gunden's analytical description of the work. In addition, three extra-musical features can be identified from the information provided by Oliveros, included in the liner notes of its first release in 1977 (Amirkhanian 2006).

Von Gunden's identified features:

A. “Extremely high narrow band of white noise resembling radio static” with corresponding low band.

This is the main sound during the opening and closing passages. It has a familiar quality of radio static but has a prominence that exceeds normal levels of electronic interference as well as a rhythmic quality due to the tape delay setup.

B. Tape delay

Oliveros is considered an innovator in the technique of tape delay “...us[ing] tape echo as the structural process behind many of her groundbreaking works.” (Holmes p.130). In *Bye Bye Butterfly*, phrases and gestures are ‘echoed’ and

layered creating a lively rhythmic quality, building in complexity with each new sound played into the tape delay setup.

C. “Wavelike gestures” from the heterodyne difference tones.

This feature appears as an electronic ‘voice’ that swoops through a wide-range of frequencies. The gestures of this ‘voice’ are a major feature of the work. They produce a tonal-like quality with antecedent-and-consequent-like phrase structures.

D. Improvised composition technique.

The electronic ‘voice’ takes on a persona through its improvisational qualities.

E. Mechanical ‘clicks’

Related to technical aspects of the work's creation, the piece opens with a mechanical ‘click’ that is fed through the tape delay producing a rhythmic spacious echo. Another is heard at about three minutes, ‘counting-in’ the entry of the sample of *Madam Butterfly*.

F. A section of Puccini’s *Madame Butterfly* (1904)

Described by Von Gunden as the ‘B’ section, an operatic burst opens this section. The LP sound source is also fed through the tape delay setup producing a layering and overlapping texture with itself.

G. The work’s ABA Ternary form

As analysed by Von Gunden, this work has a ternary structure comprised of the opening passages; the appearance of the *Madam Butterfly* LP; and the return to passages absent of the LP source. There is a sense of a ‘recapitulation’ once the LP sound source has ended, with the piece finishing as it began (see A. above).

H. “Electronic counterpoint” between the opera and heterodyne wavelike tones.

Upon the appearance of the *Madam Butterfly* excerpt, the electronic ‘voice’ can be heard to respond to the human singer, at first in a reactive contrapuntal

manner, but later seeming to mirror the tones, intervals and qualities of the soprano. Finally, low, grumbling heterodyne tones swamp the human singer.

Extra-musical features:

I. The work's title

The work's title: *Bye Bye Butterfly*, is most likely referencing two texts: Puccini's *Madam Butterfly* 'sampled' in the work; and *Bye Bye Birdie* – the fictionalised musical story of the military drafting of Elvis Presley, which was released as a popular film two years before the creation of *Bye Bye Butterfly*.

J. Information provided with its first release: The role of the technology

Oliveros provides a description of the work's technical setup:

“This work is a two-channel tape composition (with an enclosure) made at the San Francisco Tape Music Center in 1965. It utilizes two Hewlett-Packard oscillators, two line amplifiers in cascade, one turntable with record, and two tape recorders in a delay setup.”

– Oliveros's statement on *Bye Bye Butterfly* printed in the liner notes of 1750 Arch S-1765 (Amirkhanian 2006).

K. Information provided with its first release: The role of the composer

Oliveros states the manner in which the piece was created:

“The composer arranged the equipment, tuned the oscillators, and played through the composition in real time.”

– Oliveros's statement on *Bye Bye Butterfly* printed in the liner notes of 1750 Arch S-1765 (Amirkhanian 2006).

Social and aesthetic environment

Use of limited means can be seen as an aesthetic hallmark of the social creative environment within which the work was created. “*Bye Bye Butterfly*, like many

of the works composed at the Tape Music Center, was created using limited technical means.” (Bernstein p.30). Key creative practitioners such as dancer Ann (now Anna) Halprin (Kostelanetz 1968 pp. 64-77), and composer Terry Riley (Bernstein p.205-208), both collaborators of Oliveros (Bernstein), engaged in art creation with the means that happened to come to hand.

First performed in the same year as *Bye Bye Butterfly*’s composition, was Oliveros’s *Apple Box Double*. This work utilises empty apple boxes as resonators for the striking and bowing of small objects, chains etc. and is an excellent example of limited means instrumentation (Oliveros in Bernstein p.89 and performance on accompanying DVD).

The Oliveros ‘theatre’ work *Pieces of Eight* (1965) fits Kostelanetz’s definition of “theatre of mixed means” (1968), a genre of works also referred to as ‘happenings’. *Pieces of Eight* is an “...example of how Oliveros used visual and sonic imagery as a statement about performance practices.” (Von Gunden p.71). Filled with humour, double-meanings, and a giant bust of Beethoven with red flashing eyes, “...underlying this humour is the message of death to concert music...” (Von Gunden p.75).

Features of the genre

In his perennial textbook *Electronic and experimental music* Thom Holmes (third edition, 2008 pp.120-123) identifies “seven fundamental traits of electronic music”. Paraphrased, the traits are: unlimited sound sources; expanded tonality; existing in a state of actualisation (often without a score); accentuating the temporal; sound itself being the composer’s materials; extending beyond the limits of human performers; and; lacking comparison with natural sound. In addition to these traits, Holmes (p.381) outlines the role of improvisation within the genre: “Improvisation in electronic music is a 45-year tradition going back to the late 1950s...”. Holmes makes special mention of Oliveros in this topic: “Pauline Oliveros has focused on the art of improvisation for many years. Instrumentation is much less important to her than the art of *practiced listening* [within improvisation]...” (p.382).

“Something to hold onto factor”

Leigh Landy, Director of the Music, Technology and Innovation Research Centre at De Montfort University, U.K., is a leading promoter of the accessibility of electroacoustic music. He conducts reception research and provides resource tools in this area. He also works extensively towards providing definitions and frameworks for the study of electroacoustic music. (Landy 2007).

Landy's 1994 paper *The "something to hold on to factor" in timbral composition* offers an accessibility tool for inexperienced listeners of electroacoustic music in the form of categorising features composers may be utilising in place of traditional organising structures. He provides a CDiscography of works which he has found contain features that exemplify his categories in the hope that listeners will be able access the works more easily through the identified and stated features in the corresponding works.

Paraphrased, the “factor” categories are (Landy 1994 and 2007 pp.28-33):

i. Focus on a particular parameter

Works that concentrate on a single parameter: dynamics, pitch, spatial qualities, or rhythm.

ii. Homogeneity of sound and new sounds

Works that focus on minimal pitches or textures, new textures, or human vocal textures, or cases of a live instrument combined with recorded sounds.

iii. No more than four sound types at once

This category also relates to horizontal layering of textures in “...a modern equivalent of counterpoint.”(p.30).

iv. Programmes

Some programmes are stated musically and/or extra-musically, others are imagined by the listener. Included in this category are works that cite, sample or

play with existent music.

Landy also utilises the catch-all factor: “other [factors] not yet discovered”, which will be put aside for the purposes of this study.

In his 2007 book *Understanding the Art of Organised Sound*, Landy expands his scope suggesting that:

"Composers interested in an optimally appreciative public should be able to offer [a] helping hand through sharing what might be called their "access tools", audible musical aspects, or, alternatively, aspects of intention that could enhance the listening experience..." (p.27).

If the successful electroacoustic canonical work *Bye Bye Butterfly* is found to be aided by “something to hold on to factor”-Oliveros-provided-“access tools” for its success; support will be gained for Landy's suggestion.

Assessment of features

Within the overall scope of this study, the four most prominent Von Gunden identified musical features and the title of the work, are utilised as the most relevant features for assessment.

Feature: A. “Extremely high narrow band of white noise resembling radio static” with corresponding low band.

Assessment of feature as “factor” category access tool provided by the composer:

Most fitting “factor” category: ii. Homogeneity of sound and new sounds

Use of ‘white noise’ in a musical context is less likely to be primarily a provided access tool due to the ‘unpleasant’ qualities usually associated with static.

Assessment of the feature as aesthetic or symbolic expression:

The recognisable nature of this electronic ‘white noise’ can be seen to have a symbolic aspect, signalling to the listener that technology is the medium and the

aesthetic motivated choice for this work.

In creating this work Oliveros stated that she felt like she was “capturing sounds from a nether realm.”(Von Gunden p.58). The prominence of Feature A in the opening and closing passages of the work creates a strong sense of this “nether realm” from which the “voices” both electronic and human, emerge and meet.

Assessment of the feature as a combination provided aesthetic access tool:

Feature A can be seen to provide the listener a gradual ‘easing’ into the soundscape and texture of the work, and acting as a recapitulation at the works conclusion.

Conclusion of assessments:

Although the way in which Oliveros uses Feature A aids the coherence and structure of the work, Feature A does not fit well within the criteria of being a composer provided access tool. The strongest reading of Feature A can be seen to be resultant of Oliveros’s own stated “nether realm”, ‘otherworldly’ aesthetic.

Feature A embodies Holmes’s trait: sound itself being the composer’s materials.

Feature: B. Tape delay

Assessment of feature as “factor” category access tool provided by the composer:

Most fitting “factor” category: i. Focus on a particular parameter

Considered as a provided access tool, Feature B can be seen to focus the listener’s attention with its striking and repetitive qualities.

Assessment of the feature as aesthetic or symbolic expression:

In Oliveros’s 1969 article *Tape Delay techniques for Electronic Music Composers* (reprinted in Oliveros 1984) she describes a variety of tape delay techniques used in a number of her compositions. Von Gunden outlines a number of reasons Oliveros utilised these techniques, including:

“The beauty of tape delay, and one reason why Oliveros used it, is that it does not require a large amount of equipment. The tape recorder itself is used as the medium to modulate and transform sound.” (Gunden p.54)

This statement points to aspects of the creative and aesthetic environment Oliveros was working in at the time. Equipment at *The San Francisco Tape Music Center* was limited, as most was “...from junkyards and used-equipment places...” (Berstien p.133) and was suited the ‘improvising’ aesthetic of the composer. She states: “My procedure was to work from sound sources that were mostly found objects or unorthodox ways of playing instruments.” (Oliveros in Bernstein p.88).

Oliveros has further stated her attraction to tape delay:

“I think of the delay system as a time machine....[W]hat the future is essentially dealing with is really the past. So it sort of expands your sense of time.”

(Oliveros in Holmes 2008 p.119)

Assessment of the feature as a combination provided aesthetic access tool:

The rhythmic qualities of Feature B can possibly be seen to be a provided aesthetic access tool, adding a regular rhythmic structure to an otherwise ‘loosely’ structured work.

Conclusion of assessments:

The Oliveros-stated aesthetic interest in the process for creating tape delay, as well as its striking musical effect, demonstrates Feature B as quite clearly an aesthetic expression. The finesse with which Oliveros controls this feature also points to its expressive aesthetic role.

Feature B embodies Holmes's trait: accentuating the temporal.

Feature: C. "Wavelike gestures" from the heterodyne difference tones.

Assessment of feature as "factor" category access tool provided by the composer:

Most fitting "factor" category: ii. Homogeneity of sound and new sounds

The distinctive tones and gestures are engaging and draw in listener attention. But these tones do not appear until about one minute in to the work and often remain fixed on a single tone for extended periods, so "access tool" may not be their primary function.

Assessment of the feature as aesthetic or symbolic expression:

The "wavelike gestures" can be heard to be voice-like. The strong expressive qualities of Feature C are closely tied to improvisational aesthetic expression.

The use of the heterodyne difference tones can also be seen as an aesthetic choice of the composer. Oliveros states (in Bernstein p.89) that just moments prior to creating *Bye Bye Butterfly* she witnessed the demonstration of a purpose built modular synthesizer (the *Buchla Box*) at the *Tape Music Centre*: "I went upstairs to the studio after I left the Buchla demo and made *Bye Bye Butterfly*. I was still pretty attached to the sounds of those tube oscillators..."

In an interview with Bernstein (p.109) Oliveros states:

"I was really happy with the super heterodyne technique that I had developed....I had all these artifacts and instability that created those wonderful sounds. I had an ambivalent feeling about this new development, the Buchla....because I couldn't get the sounds [with it] that I could get with the oscillators."

Assessment of the feature as a combination provided aesthetic access tool:

The 'wavelike gestures' have expressive aesthetic qualities as well as providing

an accessible, distinctive tone.

Conclusion of assessments:

The ‘wavelike gestures’ and the aesthetically chosen technological method of their creation, point to Feature C being primarily an aesthetic expression.

Feature C embodies Holmes’s trait: expanded tonality.

Feature: F. Section of Puccini’s *Madame Butterfly*

Assessment of feature as “factor” category access tool provided by the composer:

Most fitting “factor” category: iv. Programmes.

This intertextual appearance of *Madam Butterfly* can be viewed as a composer provided accessibility tool in light of its audible programmatic intertextuality. The listener’s attention and interest is likely to be immediately heightened upon the appearance of this possibly recognisable (as opera at least) sample.

A possible “imagined programme” is a sense that the electronic ‘voice’ persona is responding to the opera – that someone or something ‘otherworldly’ is hearing a transmission of the opera, and that we are witnessing an attempt at interaction with the opera singer. Possibly even a display of one-upmanship over the human voice.

Assessment of the feature as aesthetic or symbolic expression:

Described by Bernstein as a “...haunting transmutation of *verismo* opera into cosmic electronic flux...”(p.ix), Feature F fits well within a number of aspects of the aesthetics of the composer, as well as relating to the aesthetics of mixed means from the social creative environment in which the work was created (Kostelanetz 1968).

“I wanted to be surprised. The record was an aria from *Madam Butterfly* by Giacomo Puccini. And I played with it, improvising as

the music was processed by my delay configuration.”

(Oliveros in Bernstein p.89).

As a symbolic statement the appearance of Feature F is core to any appreciation or reading of the work. “Both the title and the appropriation of an operatic excerpt combine to make a powerful statement about nineteenth-century musical culture...” (Bernstein p.30).

Assessment of the feature as a combination provided aesthetic access tool:

The act of engaging with a mass-produced, possibly recognisable sound source can be seen to be a combination provided aesthetic access tool.

Conclusion of assessments:

Viewing Feature F as a provided access tool does have some merit, although the highly innovative nature of this feature and evidence of the composer’s (and social creative environment’s) aesthetics of mixed means, lends greater weight to this feature’s aesthetic and symbolic roles as primary.

Feature F embodies Holmes’s trait: unlimited sound sources.

Feature: I. The work’s title

Assessment of feature as “factor” category access tool provided by the composer: Most fitting “factor” category: iv. Programmes.

Feature I implies a programme for the work. Referencing a popular culture source (*Bye Bye Birdie*) as well as the intertextual content of the work, widens potential access to the implied programme.

Assessment of the feature as aesthetic or symbolic expression:

As the work is an improvised work and the composer claims she had no knowledge of the content of the LP utilised as a sound source within the work, it can be surmised she named the work subsequent to its completion, and therefore the title provides insight to the composer’s own aesthetic ‘reading’ of the work.

The title can be viewed as a humorous, symbolic dismissive statement on past aesthetic. This reading contains strong links to the aesthetics and symbolic statements contained in other works of Oliveros, especially her mixed means theatre work *Pieces of Eight*. “As with *Bye Bye Butterfly*, problematizing traditional concert music culture was also the focus of ...other works by Oliveros...” (Bernstein p.31).

Assessment of the feature as a combination provided aesthetic access tool:

The humour of the title, and its play on an element of popular culture contemporary to the work, sets the tone for listening. The appearance of *Madam Butterfly* within the listening experience creates a conceptual link back to the title. Feature I is a good example of a combination provided aesthetic access tool.

Conclusion of assessments:

Feature I best fits assessment as a combination provided aesthetic access tool due to the implied programme and intertextual links, while fulfilling the composer’s humour and symbolic-statement aesthetics.

Interestingly, this feature cannot be seen to embody any Holmes identified traits. ‘Humour’ and ‘symbolic statement’ may not be recognised as traits common to works of electronic music. Although, the symbolism of Feature I may be seen to point to one of Holmes’s traits – that of electronic music extending beyond the limits of human performers.

Conclusion

Most sound-based and extra-musical features of the successful work *Bye Bye Butterfly*, are found to be primarily aesthetic, rather than primarily “access tools” offered by Oliveros. Some features can be viewed as combination provided aesthetic access tools. This conclusion lends some support for Landy’s suggestion composers of electroacoustic music can successfully offer “access

tools”, if (as these findings specify) these “tools” also fulfill aesthetic motivations. Findings demonstrate *Bye Bye Butterfly* as a unique art work that embodies characteristics of its genre as well as acting as a symbolic dismissive statement on past aesthetic. It is these aesthetic and symbolic features that contribute to the work's acceptance to the cannon of electroacoustic music.

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